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Antimicrobial activity of imidazo[1,5-a]quinoxaline derivatives with pyridinium moiety

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Abstract

3-Phenyl(methyl)-5-alkyl-1-(pyridin-3-yl)imidazo[1,5-a]quinoxalin-4-ones (2a-f) and their N-alky--pyridinium salts (3a-o), including 1,n-bis{3-(3- phenylimidazo[1,5-a]quinoxalin-4(5H)--n-1-yl)pyridinium}alkane dibromides (4a-d, 5, 6) have been synthesized. It has been established that the antimicrobial properties of imidazo[1,5-a]quinoxaline derivatives are connected with the presence of various alkyl substituents in the position 1 of the pyridine ring and in the position 5 of the imidazo[1,5-a]quinoxaline system. Chlorides and iodides are more active towards bacteria than fungi. Compounds 3d, 3e, 3m and 3n showed an effective bacteriostatic activity. Compound showed not only well defined bacteriostatic activities but also good fungistatic activities, with the MIC values comparable with the reference drugs. Toxicity of more effective (imidazo[1,5-a]quinoxalin-4-on-1-yl)-1-pyridinium halides was examined in mice.

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Keywords

Bacteriostatic activity, Fungistatic activity, Imidazo[1,5-a]quinoxalines, Pyridinium salt